ABSTRACTS – POSTER

902 Treatment of Acute Myocardial Infarction

Monday, March 25, 1996, Noon–2:00 p.m.
Orange County Convention Center, Hall E
Presentation Hour: 1:00 p.m.–2:00 p.m.

902-29 Ultrasound Thrombolysis in Acute Myocardial Infarction: Initial Results

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We have previously reported our experience with ultrasound angioplasty in experimental and clinical settings. These studies suggest that ultrasound selectively ablates thrombi with a wide margin of safety. The purpose of this study is to evaluate, for the first time, the clinical feasibility of percutaneous coronary ultrasound thrombolysis (ULTH) as the primary reperfusion therapy in acute myocardial infarction (MI). The ultrasound thrombolysis device consists of a solid metal probe with a distal multi-wire flexible segment, connected to a 1.6 mm tip. The device fits into a 10F guiding catheter over 0.014" guidewire. Eligible patients had acute anterior MI and TIMI 0–1 flow in the LAD. To date, ULTH was attempted in 6 consecutive patients (pts). In the first pt. ULTH failed. In the following consecutive 5 pts, following a change in the technique, sonication (45 kHz, 18 Watts, 3 m) induced TIMI grade 3 flow, MLD of 1.7 ± 0.9 mm and residual stenosis of 45 ± 24%. There were no dissections, perforations, embolizations or spasm. There were no adverse events during ULTH. Adjunct PTCA, employed in all pts, resulted in final MLD of 2.3 ± 0.3 mm and residual stenosis of 12 ± 16%. Repeat angiograms at 10 min and 24 hr revealed TIMI 3 flow in all pts. In-hospital, 1 pt. developed acute closure on day 5 that was treated successfully by PTCA. There were no deaths, bleeding or need for vascular repair. *Conclusion:* ULTH is potentially a safe and effective device solution for reperfusion therapy in the setting of MI.

902-30 Intracoronary Adenosine as an Adjunct to Combined Use of Primary Angioplasty in Acute Myocardial Infarction: Beneficial Effects on Angiographically Assessed No-Reflow

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A sound theoretical and experimental framework exists to support the investigation of adenosine as an adjunct to reperfusion therapy among humans with acute myocardial infarction. Aim of this pilot study was to evaluate the safety and feasibility of intracoronary adenosine (ADO) during primary angioplasty, as well as its effects on angiographically assessed "no-reflow" phenomenon. Of 40 pts with acute myocardial infarction consecutively referred for primary angioplasty, 20 (Group I) received intracoronary ADO (4 mg over 4 minutes) and 20 intracoronary saline (Group II). The 2 groups were similar for age (I = 61 ± 12 vs II = 65 ± 10, p = ns), sex (females: I = 5/20 vs II = 2/10, p = ns), location of infarct-related artery (left anterior descending I = 10/20 vs II = 12/20, p = ns), time from onset of chest pain to first dilatation (I = 95 ± 59 vs II 129 ± 122 min, p = ns). No pts had worsening of chest pain or hemodynamic instability or any other limiting side effects during either ADO or saline infusion. Following angioplasty the 2 Groups had a comparable final residual stenosis (% diameter reduction I = 27 ± 11 vs II = 30 ± 12, p = ns), but TIMI grade (from 0 = no flow to 3 = normal flow) in the infarct-related artery was 2.7 ± 0.4 in Group I and 2.18 ± 1.25 in Group II ($p < 0.01$). Angiographically assessed no-reflow in the infarct-related artery was present in 0 out of 20 pts of Group I and in 6 out of 20 pts of Group II (0 vs 30%, $p < 0.01$). In patients with acute myocardial infarction intracoronary ADO before primary angioplasty is feasible and well tolerated, and is associated to a lower incidence of angiographically assessed no-reflow in the dilated infarct-related artery.

902-31 The Effects of Tissue Factor Pathway Inhibitor on Myocardial Infarct Size

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Evidence is presented that a novel anticoagulant, Tissue Factor Pathway Inhibitor (TFPI), significantly reduces infarct size in a rabbit myocardium ischemia/reperfusion (I/R) model. Recombinant TFPI was examined to determine its ability to enhance survival of jeopardized myocardium following ischemic insult and reperfusion. Male and female New Zealand White Rabbits were anesthetized, their circumflex artery was occluded for a period of 45 minutes followed by a 3 hour reperfusion period. In addition to a control group (n = 11), two groups received 10 cc of either TFPI (N = 11.200 μg/ml) or vehicle (n = 10) infused over 10 seconds into the left atrium (LA) at the onset of reperfusion. Area at risk (AAR) was determined by infusing Evans blue into the LA with the circumflex occluded; percentage of AAR surviving was identified using cross sections of the left ventricle stained with 2,3,5-Triphenyl-tetrazolium Chloride (TTC) and planimetry measurements. Area of necrosis (AN) expressed as a percentage of AAR (AN/AAR) showed significant differences between the TFPI treated animals vs. those that received either vehicle or no drug (23.5% vs. 42.5% and 39.1%) respectively, p = 0.0006 and 0.003). No significant difference was observed between the groups with regard to AAR, total LV area or incidence of dysrhythmias. These results demonstrate that in the rabbit model, TFPI is an effective agent in reducing the myocardial infarct size following ischemia reperfusion *in vivo* and may prove to be a valuable addition to current treatments for acute myocardial infarction.

902-32 Risk Factors for Ischemic Stroke in Patients With Acute Myocardial Infarction Treated With Thrombolytic Therapy

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To determine the factors associated with ischemic stroke in patients with acute myocardial infarction (AMI) treated with thrombolytic therapy, we analyzed the 247 (0.6%) patients with bland ischemic stroke in the GUSTO-I trial. Mortality was 17% and an additional 40% had moderate or severe disability. Variables analyzed thus far included demographics, clinical history and risk factors, hemodynamics and treatment assignment with the most important univariable relationships as follows:

Patient characteristic	Univariable χ^2	Odds Ratio*
Older age (per 10 years)	86	1.7
History of stroke	26	4.3
Diabetes	24	2.1
History of hypertension	24	1.9
Prior angina	24	2.0
Higher pulse (per 10 beats)	20	1.2
Previous AMI	19	2.0
Worse Killip class (per class)	17	0.6
Current smoker	16	0.6
Previous bypass surgery	10	2.2
Lower weight (per 10 kg)	8	0.8
Female sex	5	0.7

*All $p < 0.05$.

Ischemic stroke is an uncommon complication in patients with AMI treated with thrombolysis, heparin and aspirin but 57% of patients die or suffer disability. Risk factors known to be associated with mortality in patients with AMI are also risk factors for ischemic stroke, an important outcome to include in baseline risk assessment.

902-33 A Composite and Practical View of Standard Coagulation Monitoring in the Identification of Patients at Risk for Major Hemorrhage

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An ability to identify patients likely to experience major hemorrhage following thrombolytic and adjunctive anticoagulant therapy is of paramount clinical importance. Patients participating in TIMI 5 (n = 246) received accelerated tPA and either heparin (target aPTT 65–90 sec) or hirudin (fixed dose).

The probability of hemorrhage increased 2% for each 1 sec increase in aPTT. By multivariable analysis, 12 h aPTT was independently associated with major hemorrhage ($p < 0.01$). A 12 h aPTT ≥ 85 sec yielded sensitivity, specificity, positive and negative predictive values of 73%, 53%, 23%, and 90%. In conclusion, the standard aPTT measurement is a clinically useful